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Acquisition

COCKPIT WORKING GROUPS

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This Air Force Instruction (AFI) implements Air Force Policy Directive, 63-1/20-1, *Acquisition and Sustainment Life Cycle Management*, by setting the objectives, membership, and responsibilities of cockpit working groups (CWG). CWGs include acquisition, test, and flight standards personnel and operational aircrews in cockpit design and configuration at the earliest stages of development and modification. The CWG ensures that decisions affecting the cockpit or remote operator station account for human factors and operational environment.

Interim Change (IC) #1 updates the title of the implemented directive, the certifying official's name, the approving official's signature block and updates acronyms and terms

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SUMMARY OF CHANGES

Interim Change (IC) #1 updates the title of the implemented directive, the certifying official's name, and updates acronyms and terms.

1. Establishment of a CWG. Establish a CWG for every Air Force aircraft that involves cockpit or remote operator station development, or substantially modifies a cockpit or remote operator station. The CWG is responsible to the Program Manager through the CWG chairperson.

2. CWG Objectives:

2.1. Provide the PM with technical guidance and a current operational perspective to help evaluate the operational suitability and effectiveness of the proposed cockpit/remote operator station designs to include human factors evaluations such as situation awareness, workload, accommodation, control/display evaluation, and task analyses.

2.2. Clarify and evaluate operational tasks and critical mission elements, and evaluate simulated mission scenarios.

2.3. Provide formal lead command liaison with the program office and prime contractor in the earliest stages of the cockpit/remote operator station design process.

2.4. Ensure the use of simulations throughout the entire cockpit/remote operator station design process.

2.5. Provide an audit trail for decisions on cockpit/remote operator station issues.

3. Membership. CWGs include members and advisors:

3.1. Members need a broad understanding of their organization and its concerns. They make cockpit design recommendations to the CWG chairperson. Appointment is for at least 2 years to guarantee continuity of critical information.

3.1.1. Members include:

3.1.1.1. The CWG chairperson (selected by the PM).

3.1.1.2. Crew station or human factors engineering representative.

3.1.1.3. Senior aircrew representatives from the requirements and the operations offices of the lead command, user commands and reserve components, as deemed necessary.

3.1.1.4. An Air Force Flight Standards Agency (AFFSA) representative.

3.1.1.5. A representative from the Responsible Test Organization (RTO) or Air Force Flight Test Center (AFFTC).

3.1.1.6. An Air Force Operational Test and Evaluation Center (AFOTEC) representative.

3.1.2. The CWG chairperson may also select other members. For multi-service acquisition programs, the CWG includes members from the lead command of all involved services.

3.2. Advisors identify cockpit/remote operator station design issues and provide technical input that members can use as the basis for recommendations. Representatives from the Air Force Safety Center, Air Force Materiel Command (AFMC), test centers, and other agencies advise as needed. The chairperson can limit attendance at CWG meetings.

4. Responsibilities. Through the program office, the CWG offers a unified government position on matters pertaining to cockpit development and modification. The CWG bases its position on members' collective experience and technical knowledge. The CWG must get approval from the PM and lead command for any recommended changes that affect the contract (cost, schedule, and performance). Approved changes will be incorporated by the contracting officer.

4.1. Program Manager (PM). The following PM responsibilities apply to all aircraft programs involving cockpit/remote operator station development or substantial modification:

- 4.1.1. Establish a CWG during Engineering and Manufacturing Development or as early as possible.
- 4.1.2. Appoint a CWG chairperson.
- 4.1.3. Contact the Crew Systems Branch of Aeronautical Systems Center, Engineering Directorate (ASC/ENFC) for information on how to establish and organize a CWG.
- 4.1.4. Write a CWG charter for the program under development.
- 4.1.5. Refer to the CWG Handbook for guidance.
- 4.1.6. Review CWG training materials to ensure that CWG members receive appropriate training before they begin working on the project.
- 4.1.7. Review and evaluate CWG recommendations.
- 4.1.8. Maintain a database of CWG issues and design decisions.
- 4.1.9. Keep up-to-date, accurate CWG meeting records.
- 4.1.10. Provide the simulation and data analysis for the cockpit design.
- 4.1.11. Establish a Cockpit Evaluation Team (CET) to support the CWG.
- 4.1.12. Appoint, if needed, additional CWG members and advisors such as pilot physicians and military test pilot school graduates.

4.2. User Command(s):

- 4.2.1. Appoint a senior aircrew member to represent the requirements office and a senior aircrew member to represent the operations office at CWG meetings.
- 4.2.2. Provide the CWG with an expert subjective analysis of the cockpit design.
- 4.2.3. Clarify the critical elements of the project to the CWG and System Developer.
- 4.2.4. Assess mission scenarios for simulator exercises.
- 4.2.5. For each aircrew position, assign aircrew members who represent the aerospace system's current or future operator community as CET members.
- 4.2.6. Appoint additional advisors such as pilot physicians, if needed.

4.3. AFMC:

- 4.3.1. Appoint engineers and scientists who know cockpit design methodology and human factors principles to serve on the CWG.

4.3.2. Evaluate proposed cockpit designs for manpower, personnel, training, human factors, safety, occupational health, and personnel survivability issues that affect system performance and operation.

4.3.3. Provide CWG training for the chairperson, members, and advisors.

4.3.4. Ensure training is accomplished before participating in CWG meetings.

4.3.5. Share information with CWG members and advisors concerning standardization requirements, procedures, tools, and techniques for cockpit evaluation.

4.3.6. Maintain CWG databases to store accumulated information and to allow various CWGs to standardize data.

4.3.7. Revise the CWG Handbook.

4.3.8. Appoint aircrew members with flight test experience as CET members to support the CWG.

4.4. **AFOTEC:**

4.4.1. Appoint a qualified AFOTEC senior aircrew member and/or human factors engineer to the CWG.

4.4.2. Assess proposed cockpit designs for functionality and early operational assessment (as required).

4.4.3. Identify aircrew members with flight test experience to the CET if required.

4.4.4. Assess lessons learned from flight testing.

4.5. **AFFSA:**

4.5.1. Appoint an instrument flying expert to the CWG.

4.5.2. Assess proposed cockpit designs for Air Force instrument flying requirements.

4.5.3. Appoint additional advisors for instrument flight expertise.

4.6. **RTO/AFFTC:**

4.6.1. Appoint a qualified RTO/AFFTC senior aircrew member to the CWG..

4.6.2. Evaluate proposed cockpit designs for functionality.

4.6.3. Identify aircrew members with flight test experience to the CET if required.

4.6.4. Assess lessons learned from flight testing.

4.7. **Advisor Organizations:**

4.7.1. Appoint appropriate personnel as advisors to the CWG.

4.7.2. Assess proposed cockpit designs in terms of the particular concerns of the participating organization.

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Deputy Assistant Secretary (Acquisition
Integration) Assistant Secretary (Acquisition)

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFMAN 33-363, *Management of Records*, 01 Mar 2008

AFPD 63-1/20-1, *Acquisition and Sustainment Life Cycle Management*, 03 Apr 2009

Adopted Forms

AF IMT 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AFFSA—Air Force Flight Standards Agency

AFFTC—Air Force Flight Test Center

AFMC—Air Force Materiel Command

AFOTEC—Air Force Operational Test and Evaluation Center

ASC—Aeronautical Systems Center

CET—Cockpit Evaluation Team

CWG—Cockpit Working Group

PM—Program Manager

RTO—Responsible Test Organization

Terms

Cockpit—Space in an aircraft or remote operator station designed for a pilot, or pilots and crew, or qualified operator(s), including the flight deck and other crew operating stations.

Cockpit Evaluation Team (CET)—Group of experienced aircraft operators participating in CWG design studies and simulations. Provides subjective inputs to the CWG on the proposed design.

Cockpit Working Group (CWG)—Team comprised of acquisition, test, and flight standards personnel and experienced aircraft operators ensuring that manpower, personnel, training, human factors, safety, and personnel survivability are considered in the cockpit/remote operator station design.

Cockpit Working Group Handbook—The CWG Handbook contains information regarding the purpose, membership, specific objectives, activities, and products of CWGs according to program phase, a model CWG charter, and previous lessons learned.

Cockpit Working Group Training Program—Educates CWG members on their responsibilities, the current state of technology in cockpit design, human factors issues, cockpit standards, and other CWG lessons learned.

Lead Commands—Major command (primary customer) with primary responsibility for the weapon system. Other operating commands support the lead command on request.

Program Manager (PM)—The designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting to the Milestone Decision Authority (MDA). (DODD 5000.1)

Substantial Cockpit Modification—Cockpit/remote operator station modifications that substantially change aircrew operational procedures, or mission-oriented operations of the aircraft (aircrew-vehicle interface). This includes display upgrades and any significant crew station geometry changes.